



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,838	10/18/2001	Paul M. Fern	064951/0182	9055

22928 7590 03/31/2003

CORNING INCORPORATED
SP-TI-3-1
CORNING, NY 14831

EXAMINER

PENG, KUO LIANG

ART UNIT	PAPER NUMBER
----------	--------------

1712

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,838

Applicant(s)

FERM ET AL.

Examiner

Kuo-Liang Peng

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/5/02 supplemental IDS.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-14 and 16-21 is/are rejected.
- 7) ☒ Claim(s) 3,4 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The followings are Examiner's suggestions/questions:

In Claims 2 and 13 (lines 2-3), should "70 C" and "140 C" be -- 70°C -- and -- 140°C --, respectively?

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 7 (line 2), it is noted that tetraethylorthosilicate is not consistent with formula (I) set forth in Claim 1.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1712

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 5-13, 17 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Holmes-Farley (US 5,139,601)

With respect to Claims 1, 7-9 and 17, Holmes-Farley discloses a layer structure obtained by applying a primer coating comprising 5 to 90% wt of tetraalkoxide and 5 to 90% wt of an acrylo group-substituted alkoxysilane on an inorganic substrate (col. 1, lines 51-65 and col. 7, lines 46 to 54). The silanes have at least partially condensed to form a sol (col. 5, lines 35-41 and col. 66, lines 9-12). Examples 6 and 7 further exemplify the used of primer coating derived from TEOS (i.e., tetraethoxysilane or tetraethylorthosilicate) and MPTS (i.e., 3-methacryloxypropyltri, optionally with PTES on an inorganic substrate such as aluminum alloy and steel. Holmes-Farley further teaches that TEOS will have a higher reactivity as compared with the reactivity of the trialkoxysilanes (col. 6, lines 43-54). Upon hydrolysis condensation, the more of trialkoxysilane will tend to appear on the surface (col. 6, lines 9-42). Therefore, the surface of the primer coating will have reactive polymerizable moieties of methacryloxy groups. Holmes-Farley further teaches that the primer coating forms covalent bonds with the surface of the substrate (col. 2, lines 42-51).

With respect to Claim 2, the primer coating is subjected to an elevated temperature such as 70 to 100°C for up to 30 minutes (col. 4, lines 45-61).

With respect to Claims 5-6, the thickness of the primer coating can be up to 700 angstroms. Maximum corrosion protection is reached when the coating is significantly less than 100 angstroms thick (col. 2, lines 28-51).

With respect to Claims 10-11, the amounts of TEOS and MPTS described in Examples 6 and 7 read on the limitation of the instant claims.

With respect to Claims 12-13 and 20, Holmes-Farley further teaches that the acrylo groups in the aforementioned acrylo group-substituted alkoxysilane (i.e., functioning as a coupling agent) form covalent bonds with a layer of bonding adhesive (col. 1, line 66 to col. 2, line 13). The bonding adhesives can be the ones described in col. 7, line 56 to col. 8, line 12, which can be cured under heat (i.e., energy curable).

7. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Holmes-Farley as evidenced by Coleman (US 3,258,388).

Holmes-Farley discloses a process for forming a polymer layer on an inorganic substrate as described in paragraph 5, which is incorporated herein by reference.

Holmes-Farley further teaches in col. 7, line 66 to col. 8, line 3 that the bonding adhesive can be the one described in Coleman. Thus, Coleman teaches that the bonding adhesive can be a composition comprising a di-C-nitroso aromatic compound and a metal adherent and a vulcanizable olefin (col. 5, line 71 to col. 6, line 1), which is exemplified in Example XIII

Art Unit: 1712

wherein fumaric acid is used as the vulcanizable olefin and benzoyl peroxide is used as a free radical initiator.

8. Claims 18-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Holmes-Farley.

Holmes-Farley discloses a layered structure as disclosed in paragraph 6, which is incorporated herein by reference.

It is noted that the reactivity of methacryloxy groups typically heavily depends on the surrounding environment/medium. Since Holmes-Farley's primer composition is substantially identical to the primer composition in the instant claims (i.e., the surrounding environments/media of the methacryloxy groups in both primer compositions being substantially identical), Examiner has a reasonable basis to believe that the methacryloxy groups in Holmes-Farley's composition have the same stability as those in the instant claims. *In re Best*, 195 USPQ 430 (CCPA 1977).

9. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by JP045 (JP 2000-272045).

With respect to Claim 17, JP045 discloses a layered structure comprising a steel substrate wherein the following layers are successively applied: an adhesive layer, a fluorinated rubber layer and a perfluorinated rubber layer. The adhesive layer comprises γ -methacryloxypropyltrimethoxysilane (27 parts by weight) and γ -aminopropyltrimethoxysilane (3 parts by weight) ([0014]).

Art Unit: 1712

10. Claims 18-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP045.

JP045 discloses a layered structure as disclosed in paragraph 9, which is incorporated herein by reference.

With respect to Claims 18-19, it is noted that the reactivity of methacryloxy groups typically heavily depends on the surrounding environment/medium. Since JP045's adhesive layer composition is substantially identical to the primer composition in the instant claims (i.e., the surrounding environments/media of the methacryloxy groups in both adhesive layer compositions being substantially identical), Examiner has a reasonable basis to believe that the methacryloxy groups in JP045's composition have the same stability as those in the instant claims. *In re Best*, 195 USPQ 430 (CCPA 1977).

With respect to Claims 20-21, it is noted that JP045's adhesive layer composition can be cured via the methacryloxy groups ([0007]) by using an initiator such as an organic peroxide. The fluorinated rubber layer comprises a fluorinated rubber that is curable by an organic peroxide ([0009] and [0014]). Since JP045's adhesive layer composition and fluorinated rubber layer composition both contain organic peroxide curable moieties, Examiner has a reasonable basis to believe that upon curing, there are covalent bonds formed between the adhesive layer and the fluorinated rubber layer.

11. Claims 1-2, 5, 8-9 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by JP045 (JP 2000-272045) as evidenced by Blohowiak (US 5,939,197).

With respect to Claims 1, 8 and 10-11, JP045 discloses a process for priming an inorganic substrate using an adhesive layer ([0006]-[0008]). The inorganic substrate can be steel, aluminum, etc. ([0006]). The adhesive layer can comprise γ -methacryloxypropyltrimethoxysilane (27 parts by weight) and γ -aminopropyltrimethoxysilane (3 parts by weight) as described in ([0008] and [0014]). Blohowiak further teaches that alkoxysilane compounds can form covalent bonds with a steel surface (Figure 15, col. 19, lines 19-21 and 53-63). Normally, only one reference should be used in making a rejection under 35 U.S.C. 102. However, a 35 U.S.C. 102 rejection over multiple references has been held to be proper when extra references are cited to A) Prove the primary reference contains an "enabled disclosure"; B) Explain the meaning of a term used in the primary reference; or C) Show that a characteristic not disclosed in the reference is inherent. See MPEP 2131.01. In this instance, Blohowiak is cited here only for the purpose of showing that alkoxysilane compounds can form covalent bonds with a steel surface.

With respect to Claims 2 and 9, the adhesive layer can be condensed at a temperature from 120 to 140°C for 5 to 10 minutes ([0007]-[0008]).

With respect to Claim 5, the thickness of the adhesive layer can be 0.5 to 2 μm (500 angstroms to 2 μm) ([0018]).

12. Claims 12-14 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP045 as evidenced by Blohowiak.

JP045 as evidenced by Blohowiak discloses a process for priming an inorganic substrate (i.e., steel plate) using an adhesive layer ([0006]-[0008]) as disclosed in paragraph 10, which is incorporated herein by reference.

Art Unit: 1712

JP045 further teaches applying an energy curable fluorinated rubber layer on top of the adhesive layer, which is curable by a free radical initiator of an organic peroxide at an elevated temperature ([0009] and [0014]). It is noted that JP045's adhesive layer composition can be cured via the methacryloxy groups ([0007]) by using an initiator such as an organic peroxide. The fluorinated rubber layer comprises a fluorinated rubber that is curable by an organic peroxide ([0009] and [0014]). Since JP045's adhesive layer composition and fluorinated rubber layer composition both contain organic peroxide curable moieties, Examiner has a reasonable basis to believe that upon curing, there are covalent bonds formed between the adhesive layer and the fluorinated rubber layer.

13. Claims 3-4 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Holmes-Farley does not teach or fairly suggest a) a silicon wafer substrate; and b) a photoinitiator and an energy curable composition being polymerized by exposure to actinic radiation.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is (703) 306-5550. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

Art Unit: 1712

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson, can be reached on (703) 308-2340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Kuo-Liang Peng

March 24, 2003

A handwritten signature in black ink, appearing to read "Kuo-Liang Peng", written in a cursive style.